



Express Mail No.: EL 451 599 831 US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Payne *et al.*

Application No.: 10/007,134

Group Art Unit: 2823

Filed: December 4, 2001

Examiner: J. Maldonado

For: POST ETCH CLEANING  
COMPOSITION AND PROCESS FOR  
DUAL DAMASCENE SYSTEM

Attorney Docket No.: 8317-123-999

**DECLARATION OF DAVID MALONEY, Ph.D.  
UNDER 37 C.F.R. §1.132**

RECEIVED  
APR 16 2003  
TECHNOLOGY CENTER 2800

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

I, the undersigned David Maloney, a citizen of Canada, residing at 4035  
Alderwood Court, Pleasanton, CA 94588, hereby declare and state that:

1. I am an inventor of the captioned application ("the application"), and I performed and/or supervised work described in the application.
2. I graduated from and have a Doctorate in Chemistry granted by Texas A&M University in 1995.
3. I have been employed by EKC Technology Inc. since 1996. During this time, I have conducted research and development related to the process claimed in the application and have further conducted research and development related to choline compounds and their use as etch residue removers.

4. I have read the Office Action mailed on October 23, 2002 concerning the above-captioned application. I have read and am familiar with the prior art cited in that Office Action, i.e., U.S. Patent No. 5,846,695 to Iwata et al. ("the Iwata patent") and U.S. Patent No. 5,798,323 to Honda et al. ("the Honda patent"). The following remarks are provided in support of the patentability of the claimed invention.

5. The Iwata patent describes a photoresist remover comprising 0.01 to 20% by weight of a quaternary ammonium hydroxide, 1 to 80% by weight of a nucleophilic amine, 0.5 to 20% by weight of a sugar and/or a sugar alcohol, and water in the remaining amount. *See Abstract.* A critical aspect of this disclosure is the use of a sugar or sugar alcohol. The application states that "[w]hen the concentration of the sugar or the sugar alcohol is lower than the specified range, corrosion of the wiring material cannot sufficiently be prevented." Col. 4, lines 25-28. I have reviewed the properties of the examples of the sugar and sugar alcohols disclosed in the Iwata patent in relation to our claimed invention. Since the sugar and sugar alcohols are not choline compounds, nor are they water, then the only question is whether these compounds could be considered as organic solvents as intended in our invention. It is easily concluded that they cannot be an organic solvent as claimed in our invention.

6. First, if the sugar or sugar alcohol were substituted as the organic polar solvent, the product would not perform adequately as a residue remover and would likely cause additional residues to form.

7. Second, at the temperature at which the invention of the above-identified application is used, substituting the same percentage of sugar or sugar alcohol would result in an unusable product due to its viscosity.

8. In view of the Iwata reference, one of skill in the art would not consider using a formulation from Iwata that did not contain a sugar or sugar alcohol, as with the invention

of the present application. Moreover, it is my opinion that one of skill in the art would not consider combining the Iwata and Honda references because Honda does not teach the use of a sugar or sugar alcohol and one of skill in the art would conclude from Iwata that corrosion would result “[w]hen the concentration of the sugar or the sugar alcohol is lower than the specified range” in the Iwata reference. *See*, Iwata et al, col. 4, lines 25-30.

9. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001, and that such willful false statements can jeopardize the validity of any patent issuing from the captioned application or claiming the benefit of its priority.

Signed David J. McCarthy

Date MARCH 20, 2003